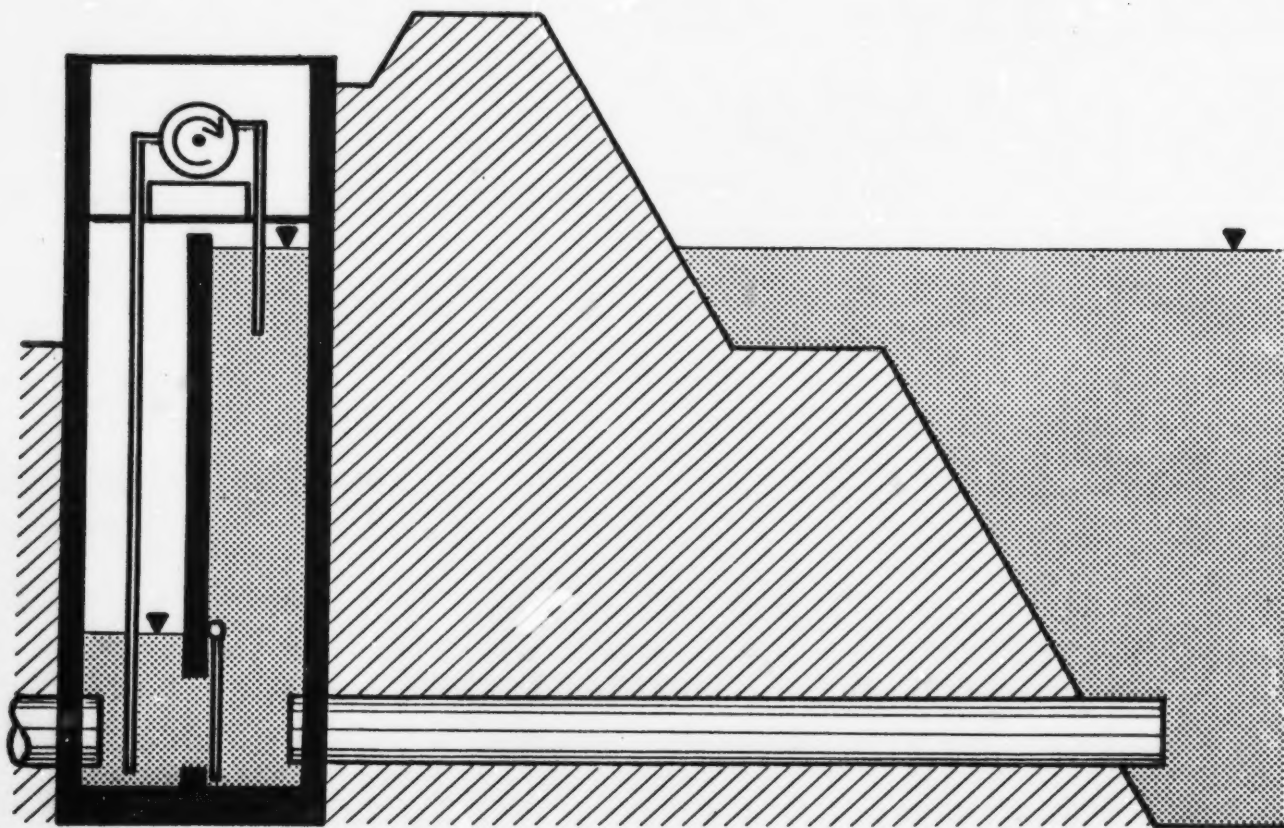


THE ANNUAL REPORT
OF THE
DYKING COMMISSIONER
•FOR THE YEAR ENDING DEC.31,1985•



SUBMITTED TO:

The Hon. LEONARD HARAPIAK
Minister
Department of Natural Resources

SUBMITTED BY:

F. PENNER P.Eng.
Dyking Commissioner

Manitoba



Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

May 23, 1986

File: 11.1.5

The Honourable Leonard E. Harapiak
Minister of Natural Resources
Room 215, Legislative Building,
450 Broadway Avenue
Winnipeg, Manitoba
R3C 0V8

Dear Sir:

I have the privilege to submit, herewith, the Thirty-Fourth Annual Report of the Dyking Commissioner as required under Section 15 of the Dyking Authority Act.

This report covers the appraisal of the Greater Winnipeg Dyking System and ancillary Pumping Stations for the 1985 calendar year, to determine it's adequacy to provide flood protection for the City of Winnipeg.

This report was not made "before the first day of April" as required by the Act because some information required for the report was not received from the City of Winnipeg until May 13, 1986.

Please note that the Act does not require this report to be tabled in the Legislature.

Yours truly,

A handwritten signature in dark ink, appearing to read 'F. Penner', written in a cursive style.

F. Penner, P. Eng.
Dyking Commissioner

Encl.

THIRTY-FOURTH ANNUAL REPORT
OF THE
DYKING COMMISSIONER
FOR THE YEAR ENDING DECEMBER 31, 1985

Winnipeg, Manitoba
May, 1985

PREPARED BY:

F. Penner, P. Eng.
Dyking Commissioner

ACKNOWLEDGEMENTS

Evaluation of the adequacy of the dyking system is based to a large extent on the data provided by the staff and personnel employed by the City of Winnipeg, the University of Manitoba and the Department of Natural Resources. Their co-operation in providing annual reports and technical advice is gratefully acknowledged.

The Dyking Authority Act of 1952

The Dyking Authority Act D110, passed in 1952, was intended to ensure that the dykes and pumping stations constructed subsequent to the 1950 flood were maintained in a state of readiness to combat future floods. In fact, the full title of the Act is "An Act to Provide for the Maintenance of Dykes and Pumping Stations in Greater Winnipeg".

While authority and control over dykes and pumping stations was vested with the city or rural municipality in which they were situated, provision was made for the appointment of a Dyking Commissioner with powers to inspect dykes and pumping stations and to order work to be undertaken to maintain an integrated system of flood defences as well as to establish the location of the line of defence.

The Dyking Commissioner was required to "before the first day of April in each year, make to the Minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed".

Changes Since 1952

Several major changes have taken place since the passing of the Act in 1952.

1. The Red River Floodway, Portage Diversion and Shellmouth Dam projects have been completed.
2. The five cities and two rural municipalities subject to the Act have been replaced by a single city.
3. Urban development has taken place beyond the lines of flood defence established earlier as well as beyond the development existing when the original pumping stations were designed.
4. The Canada - Manitoba Flood Damage Reduction Agreement has produced an Interim Flood Risk Map designating Flood Risk Areas and Floodways in the City of Winnipeg and has defined certain criteria for developments dictated by flood levels.

Current Issues

These changes have given rise to the following issues:

1. The flood defence lines as currently established need revision to recognize the reality of the Floodway and existing urban development. For example Metro Route 80 (Waverley Street) is no longer required as a flood defence line to prevent flooding from the west.
2. Operating rules for the Red River Floodway and the Portage Diversion need to be reviewed and formally approved. Since these works are capable of providing flood protection beyond the nominal 160 year design flood the rules should cover operation beyond this limit, presumably to the point where the primary dykes raised by emergency dyking, would be overtopped.

Current Action On Issues

The current status of action to resolve the issues is as follows:

1. The City is reviewing the Primary Dyking System for improvements and possible extensions. Surveys of several deficient areas and possible extensions suggested in the report have been completed. Plans of all improvements and extensions are being prepared and will be submitted to the Dyking Commissioner for approval. A number of preliminary proposals have been reviewed with the Commissioner as noted in the City of Winnipeg report in Appendix C. Additionally the City is developing drainage design criteria for protected areas.
2. The Dyking Commissioner on February 3, 1981 recommended to the Director of the Water Resources Branch that the operating rules for the Red River Floodway and the Portage Diversion be reviewed and formally approved. A report "Red River Floodway - Program of Operation, October 1984" has now been prepared and approved by the Director of the Water Resources Branch.

Extreme Flood Workshop

While existing flood protection works are designed for floods having a low probability of occurrence, their capacity could be exceeded under worst case conditions. Recent events - Bhopal chemical leak in India, Tylenol poisoning in U.S.A. (twice), Chernobyl in U.S.S.R. - confirm that "worst cases" do occur and that it is prudent for persons who may have to deal with them to be aware of them and have some strategy of dealing with them.

The last major flood fighting operation in the City occurred in 1966. Since that time many organizational and staff changes have taken place in the City and in Provincial government departments. Additionally the Province has incurred substantial additional flood fighting commitments by virtue of the construction of community dyking systems. Hence an extreme flood event may find experienced and knowledgeable staff spaced thinly and unevenly.

These considerations lead the Dyking Commissioner to recommend that a one or two day workshop be held for City and Provincial staff who would be involved in fighting an extreme flood with a view to creating an awareness of the probability and nature of extreme floods. Matters to be considered might include:

1. Probability, magnitude and duration of extreme floods.

2.

- 6 -

Flood forecasting capability.

3. Authority and command structure.

4. A "paper exercise" to mobilize resources for emergency dyking.

5. A "paper exercise" to evacuate threatened areas.

The workshop would require considerable effort - up to several weeks - from resource persons and planning staff to define and achieve its objectives. Participants would require one or two days. One way to implement this proposal would be for the City and the Province to each appoint one member to a steering committee which would appoint and direct a larger committee to organize a workshop for February 1987. The Dyking Commissioner is prepared to assist in any way.

Inspection of Facilities

The City and the University have ongoing inspection and maintenance programs.

I have been impressed with the degree of care and the associated costs which the City applies to its flood protection facility.

Reports by the City of Winnipeg and the University of Manitoba

A questionnaire was sent to the City and to the University requesting information for the purpose of preparing this report. A copy of the request and questionnaire is included in Appendix B. The replies to the questionnaire, included in Appendix C, indicate that inspections were carried out, no unusual conditions were encountered and no unusual maintenance was required. All facilities appear to be in satisfactory condition.

Operation Of Pumping Stations And Gates

Although the 1985 spring flows were of minor magnitude, fifteen permanent pumping stations and one temporary station were activated. Details are included in the City report in Appendix C.

Additional Works Constructed

The City automated two additional pumping stations as part of its continuing program to automate the most frequently operated pumping stations. Sixteen stations are now automated.

Recommendations

It is recommended that:

1. City of Winnipeg complete their study of the revision and extension of the line of flood defence as soon as possible.
2. The City and the provincial Department of Natural Resources consider holding an Extreme Flood Workshop.

THIRTY-FOURTH ANNUAL REPORT

APPENDIX A

CITY OF WINNIPEG MAP - SHOWING DISTRICT BOUNDARIES,
FLOOD DEFENCE LINES AND PUMPING STATION LOCATIONS.





ST BONIFACE

JAMES AVE PUMPING STATION

WINNIPEG

TUXEDO

22

XEDO

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END OF PYP NO 4
FILE NO. 10-1-1029

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FILE NO

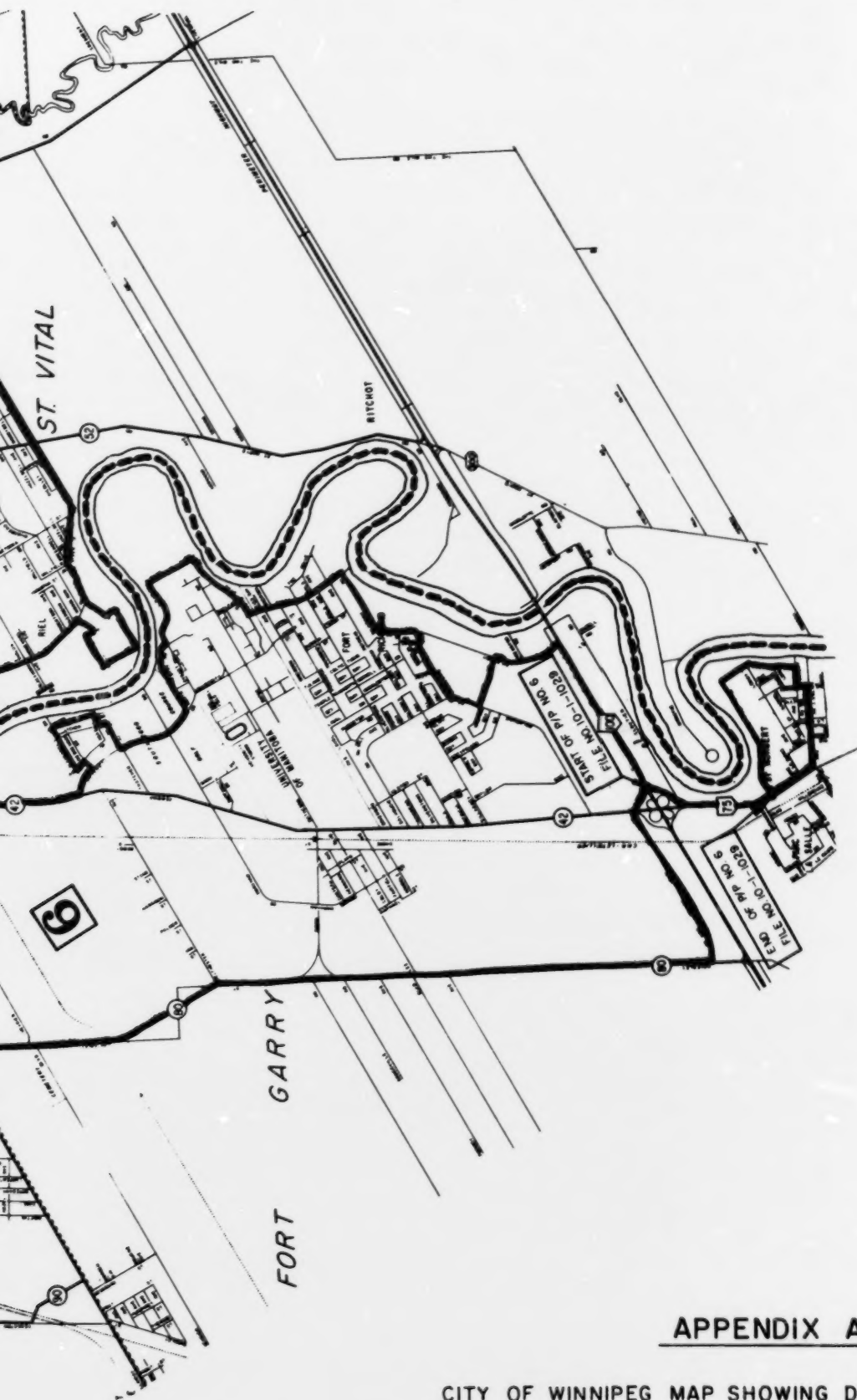
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FILE NO. 10-1-1029

ONAL AIRPORT

GEORGE

ST.



APPENDIX A

CITY OF WINNIPEG MAP SHOWING DISTRICT BOUNDARIES,
FLOOD DEFENCE LINES AND PUMPING STATION LOCATIONS.

THIRTY-FOURTH ANNUAL REPORT

APPENDIX B

COPY OF QUESTIONNAIRE SENT TO:

THE CITY OF WINNIPEG
THE UNIVERSITY OF MANITOBA

Manitoba



Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

January 28, 1986

File: 11.1.5

A. Penman, P. Eng., Director,
Waterworks, Waste and Disposal Department
1500 Plessis Road
Box 178 Transcona P.O.
Winnipeg, Manitoba
R3C 2Z9

Dear Mr. Penman:

RE: DYKING COMMISSIONER'S 1985 ANNUAL REPORT

The Dyking Authority Act, Section 15, requires that:

"The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist me in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction by 1986 03 15. For convenience, I am including a standard questionnaire similar to that used in previous years.

I would like to meet with your staff preferably during the week of February 24, 1986 to review progress in revising the lines of flood defense prior to preparing my report.

Yours truly,

ORIGINAL SIGNED BY:

F. Penner, P. Eng.
Dyking Commissioner

FP:spr

QUESTIONNAIRE FOR THE ANNUAL REPORT
ON THE PRIMARY DYKING SYSTEM
WITHIN THE CITY OF WINNIPEG

1. For 1985 Calendar Year

Please provide information concerning:

- a) Difficulties and problems encountered,
- b) Maintenance and repairs carried out,
- c) New Sewer Outfall Gate Structures constructed,
- d) Improvements and modifications carried out.

2. Proposed Plans for Future

Please provide information concerning proposed new structures, modifications to existing structures, and proposed improvements or additions to the dyking system. Also note any evaluation studies completed or underway in connection with the "Primary Dyking System".

Further, in view of the apparent erosion and river bank stability problems, please provide information in regard to:

- a) Evaluation of river bank stability in critical areas.
- b) Monitoring of erosion of river banks in critical areas.
- c) Any remedial works undertaken or completed in 1983.

3. Availability and Location of Proposed Borrow Pits

Indicate changes if any in availability and location of proposed borrow pits in 1985.

Manitoba



Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

January 28, 1986

File: 11.1.5

Dr. D. Wells
Vice-President (Administration),
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

Dear Dr. Wells:

RE: DYKING COMMISSIONER'S 1985 ANNUAL REPORT

The Dyking Authority Act, Section 15, requires that:

"The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist me in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction by 1986 03 15. For convenience, I am including a standard questionnaire similar to that used in previous years.

The location of the line of flood defense on the river side of the Earth Sciences Building has been approved in 1985. I note that your consultant has specified certain conditions respecting the raising of this dyke and asked that these be included in the University's Flood Protection Manual. (Reference letter L.D. Keil to T. Stratton, November 6, 1984, copy attached). Please advise if this has been done. I would be interested in obtaining or at least in examining your manual.

Yours truly,

A rectangular box containing a faint, illegible signature, likely of the Dyking Commissioner.

F. Pennér, P. Eng.
Dyking Commissioner

Attachment

FP:spr

QUESTIONNAIRE FOR THE ANNUAL REPORT
ON THE PRIMARY DYKING SYSTEM
WITHIN THE CITY OF WINNIPEG

1. For 1985 Calendar Year

Please provide information concerning:

- a) Difficulties and problems encountered,
- b) Maintenance and repairs carried out,
- c) New Sewer Outfall Gate Structures constructed,
- d) Improvements and modifications carried out.

2. Proposed Plans for Future

Please provide information concerning proposed new structures, modifications to existing structures, and proposed improvements or additions to the dyking system. Also note any evaluation studies completed or underway in connection with the "Primary Dyking System".

Further, in view of the apparent erosion and river bank stability problems, please provide information in regard to:

- a) Evaluation of river bank stability in critical areas.
- b) Monitoring of erosion of river banks in critical areas.
- c) Any remedial works undertaken or completed in 1983.

3. Availability and Location of Proposed Borrow Pits

Indicate changes if any in availability and location of proposed borrow pits in 1985.

THIRTY-FOURTH ANNUAL REPORT

APPENDIX C

REPLIES TO THE QUESTIONNAIRE IN APPENDIX B
FROM
THE CITY OF WINNIPEG
AND
THE UNIVERSITY OF MANITOBA



THE CITY OF WINNIPEG

WORKS AND OPERATIONS DIVISION
WATERWORKS, WASTE, AND DISPOSAL DEPARTMENT

1500 PLESSIS ROAD • BOX 178 TRANSCONA P.O. • WINNIPEG • MANITOBA • R2C 2Z9

IN REPLY PLEASE REFER TO

File: RF-1

TELEPHONE 237-4203

1986 05 07

Manitoba Department of Natural Resources,
1577 Dublin Avenue,
Winnipeg, Manitoba,
R3E 3J5

Attention: Mr. F. Penner, P. Eng., Dyking Commissioner

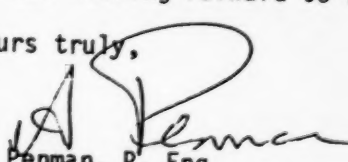
Dear Sir:

Re: Dyking Commissioner's 1985 Annual Report

In reply to your letter of January 28, 1986, please find attached the 1985 Flood Control Reports of the Waterworks, Waste and Disposal Department, the Operations Department, and the Streets and Transportation Department, with regard to Flood Pumping Stations and the Dyking System within the City of Winnipeg.

We are looking forward to receiving copies of your report when completed.

Yours truly,


A. Penman, P. Eng.,
Director.

PEAL/jm

Attach.



WINNIPEG

..where the New West begins.

THE CITY OF WINNIPEG
WATERWORKS, WASTE AND DISPOSAL DEPARTMENT
FLOOD CONTROL REPORT
1985

The City of Winnipeg, Waterworks, Waste and Disposal Department is responsible for the Primary Dyking System and the flood pumping stations within the City of Winnipeg. The following report summarizes the operation of these facilities for the 1985 calendar year.

Throughout 1985, all flood pumping stations were inspected once per week by the Collection System crews of the Waterworks, Waste and Disposal Department. All stations were checked for temperature, basement flooding and vandalism. All problems were repaired as soon as possible.

Commencing in the month of March, all stations were given a complete maintenance check to ensure that these facilities were ready for operation when required. This annual servicing includes:

- i) lubricating and operating all positive gates on sanitary, storm and combined sewers;
- ii) inspection of all wet well floats;
- iii) lubricating and operating of all pumps and equipment within the station;
- iv) inspection of all electrical main boxes, starter boxes and motors;
- v) inspection of all high voltage transformers and equipment;
- vi) inspection of automated control system, where installed.

During 1985, no severe flooding conditions were experienced within the City. The Red River peaked at 4.443 m (14.6 ft.) above City datum on March 28th. Under these conditions it was necessary to activate fifteen (15) permanent flood pumping stations and one (1) temporary flood pumping station as well as closing twenty-four (24) positive gates. Another seven (7) outfalls were protected by flap gates. A summary of the 1985 Flood Control Record is attached.

During the period that the river was in flood stage, staff from the Waterworks, Waste and Disposal Department were assigned to shifts providing 24 hour coverage for all Collection System and Flood Control Works.

During the months of October and November, all flood pumping stations were winterized in conjunction with the routine weekly checks. In addition, during 1985, work was completed to automate the pump controls at two (2) of the flood pumping facilities within the City. This brings to sixteen (16) the number of stations which have been automated and available for duty in 1986.

The Waterworks, Waste and Disposal Department in conjunction with the six districts of the Operations Department have continued in their efforts to upgrade the information provided in the Flood Control Manual. This information was assembled in an addendum form for use in 1985 and it is anticipated that the entire manual will be completely revised in 1986.

Other 1985 issues pertinent to flood control include:

1.0 Extensions and Redesignations of the Primary Line of Flood Defence (PLD):

.1 Extension of Primary Line of Defence to the South

The PLD in District 5 (St. Vital) presently extends southward to Vista Avenue. Urban residential developments now exist south of Vista to within 300 m north of PTH 101, and are unprotected by the PLD. The flood defense drawings have been completed for St. Mary's and St. Anne's Road from Vista Avenue southward to the Red River Floodway berm, and have been reviewed by the Dyking Commissioner. On completion of final revisions to the drawings, the City will make application to the Dyking Commissioner to have these roads designated as PLD and to remove the PLD designation from Vista Avenue.

.2 Redesignation of PLD and Floodway Fringe - District 6
(Ft. Garry)

A final flood defense drawing including as-constructed details of dyking, pumping, gating, and internal drainage facilities, for a commercial subdivision between Plaza Drive and the Red River immediately north of RT.165, has been approved-in-principle by the Dyking Commissioner. On completion of final revisions, the City will make application to the Dyking Commissioner to have the PLD redesignated.

.3 Redesignation of PLD and Floodway Fringe - District 3
(West Kildonan)

The Rivergrove Subdivision (residential) is located within the fringe area between the Red River and Main Street, immediately North of Red River Boulevard to the extension of Fernbank Avenue.

The north leg of the required primary dyke is not yet constructed, pending the developers' attempt to secure agreements with adjacent land owners to extend the dyke through their lands. As the internal services are near completion and numerous lots within the fringe are sold, it is imperative that either the developer complete construction of the dyke, or that an agreement ensuring completion of the dyke be executed prior to the release of any building permits within the fringe.

.4 Extension of PLD via Normand Park - District 5

Further to Item 1.1, an application for subdivision (DASZ 14/80) includes a requirement that the developer provide a land drainage/flood protection study for the entire Normand Park peninsula. The terms of reference have been drafted, and subsequent to review, will be forwarded to the developer. The developer is intent on maintaining the developability of basements in the subdivision, and is therefore actively pursuing easements in order to designate a perimeter PLD.

2.0 Turnbull Drive Dyke - 768 Association:

There has been no changes from the 1984 report. The City continues to actively pursue the execution of a 'Letter of Understanding' with the 768 Association, outlining specifically the services which the City would provide concerning the Dyke.

3.0 Lot 16 Drain Flood Protection and Waverley Heights Lakes Outfall Flood Control Structure - District 6 (Fort Garry):

Further to our 1984 report, the structure, which features backflow and positive gates, and provision for temporary pumping, is substantially completed and operational. The activation levels for the structure will be added to the City's "...Flood Pumping Station..." manual.

4.0 Flood Pumping Station Capacities:

Further to our 1984 report, the recommendations proposed in the 1982 "...High River Levels" study are being reviewed to address coincident high river levels plus spring rainfall events, in order to define criteria which would result in a uniform level of flood protection within the City. The relationship of the station prioritization to the prioritization list for the combined sewer relief program will be addressed. Subject to the criteria, a priority list of required station upgrading will result in an optimization of budgeted annual expenditures.

DGG:PEAL:jb
Attachment

1986 05 06

File: WDD/RF-1

FLOOD CONTROL RECORD

TABLE 1

MARCH AND APRIL 1985

STATION	GATE	STATION ACTIVATED	GATE CLOSED	TIME	DATE	RED RIVER ELEVATION CITY DATUM (METRES)
LaVerendrye		X	X	15:50	03 21	1.430
	Fort Rouge Park	Standby Pump	X	09:30	03 23	2.525
	Maryland	Flap Leaking	X	11:30	03 24	2.902
Armstrong		Station Shut Down		10:45	03 23	2.554
Despins		X	Flap	12:15	03 23	2.560
	Somerset		By Dist. 6	09:30	03 25	3.268
	St. Norbert@Dyke		By Dist. 6	11:30	03 23	2.554
Marion		X	Flap	12:45	03 23	2.566
	Ruby		X	14:30	03 26	3.635
	Aubrey Storm		X	15:20	03 26	3.635
	Calrossie		X	14:15	03 26	3.617
	Chelsea@Watt		X	20:00	03 27	4.000
Jefferson		X	X	21:00	03 27	4.235
	Chelsea@Golspie		X	20:30	03 27	4.000
Metcalfe		X	Flap	21:30	03 27	4.235
Mager Drive		X	Flap	22:00	03 27	4.300
	McDermot		X	13:45	03 28	4.433
	Lombard		X	23:45	03 27	4.395
Baltimore		Leaking Flap Gate				
		X	X	11:45	03 23	2.560
	Eccles		X	00:30	03 27	4.417
Cockburn		Leaking Flap Gate				
		X	Flap	09:30	03 23	2.538
	Burrows		X	21:45	03 28	4.434
Newton		X	X	22:45	03 27	4.395
Turnbull Dr.		X	Flap	10:00	03 26	3.575
Bannatyne		X	X	18:00	03 28	4.444
	Spence		X	20:45	03 28	4.441
	Canora		X	19:30	03 28	4.443
Syndicate		X	Flap	18:30	03 28	4.442
Linden		X	X	19:30	03 28	4.443
ArchibaldU.P.		X	X	20:45	03 28	4.441
	Douglas Park Rd.		X	10:00	03 27	3.798
Hart	Leaking Flap Gate	Manned by Dist.4				
		X	X	09:00	03 28	4.436
Chataway		Minor Alarm				
		Treated as Major	X	21:00	03 24	3.095
	Chelsea@Watt		By Dist.4			
			X	09:30	04 03	3.725

FLOOD CONTROL RECORD

TABLE 2

MARCH AND APRIL 1985

STATION	GATE	STATION DEACTIVATED	GATE OPENED	TIME	DATE	RED RIVER ELEVATION CITY DATUM (METRES)
Bannatyne Newton Jefferson	Calrossie		By Dist. 6	12:30	03 31	4.008
	Chelsea @Golspie		By Dist. 4	09:30	04 01	3.501
	Chelsea @Watt		By Dist. 4	09:30	04 01	3.501
	Canora		X	10:45	04 01	3.512
	Spence		X	11:15	04 01	3.512
		X	X	11:30	04 01	3.512
		X	X	15:30	04 01	3.514
		X	X	14:30	04 01	3.514
	Eccles		X	13:00	04 01	3.509
	Lombard		X	14:00	04 01	3.514
Linden Hart	Aubrey Storm		X	09:30	04 01	3.501
	Ruby		X	10:15	04 01	3.502
		X	X	10:00	04 02	3.539
		X	X	15:00	04 02	3.590
	McDermot		X	17:00	04 02	3.620
	Burrows		X	14:00	04 03	3.744

1986 04 22

LP/gk

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

148 PL

FILE RF-1

To: Mr. P. Lagasse, P. Eng.

Waterworks, Waste & Disposal Dept.

RECEIVED
WATERWORKSFrom: Mr. G.K. Stewart, P. Eng.
Director of Operations

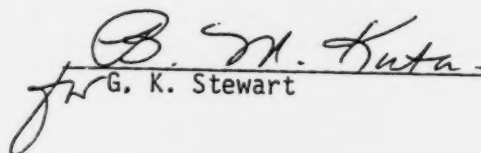
APR 1 10 23 AM '86

Re:

Date: 1986 03 26

Re: Dyking Commissioner's 1985 Annual Report
Your File No. RF-1

Further to your memorandum dated February 13, 1985 re the above noted,
I am enclosing herewith copies of responses received from Districts 1
through 6 inclusive.


G. K. Stewart

*sk
Encls.

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

TO: B. Kuta
Administrative Assistant
Operations Department

FROM: D. Wiwchar, P. Eng.
Assistant District
Engineer - District 1

FILE: S-40-10-2

DATE: 1986 03 10

Re: Dyking Commissioners 1985 Annual Report

The following is the District 1 reply to the questionnaire for the annual report on the Primary Dyking System for the 1985 calendar year.

1. The Baltimore Outfall to the Red River was reconstructed in 1985 which included repairing the outfall pipe, placing grouted rip rap and landscaping.

A catch basin outfall was constructed on the south side of Wolseley to the Assiniboine River to drain a parking lot area (806 Wolseley).

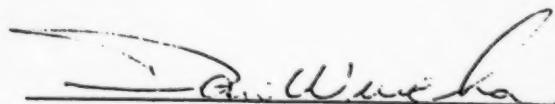
2. Modifications to the Clifton and Cornish Outfalls to the Assiniboine River will take place in 1986 consisting of pipe repair, grouted rip rap and landscaping.

The Swift Park Snow Dump on the Red River will be phased out in 1986.

A program to evaluate the stability of the Churchill Drive Snow Dump on the Red River will be set up in 1986.

River Bank Stability Monitoring Programs are taking place along the Red River East of Osborne Street at Don Avenue and along the Assiniboine River South of Wolseley Avenue at Dominion Street.

3. There is no location within District 1 that could be used as a borrow pit.



D. Wiwchar, P. Eng.

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

To: Mrs. B. M. Kuta,
Administrative Assistant,
Operations Department.

From: S. Winch, C.E.T.,
Technical Supervisor,
District #2 Operations.

Re:

Date: February 24, 1986.

RE; DYKING COMMISSIONER'S 1985 ANNUAL REPORT

The following is in reply to Mr. Lagasse's memo of Feb. 13, 1986:

1. For 1985 Calendar Year

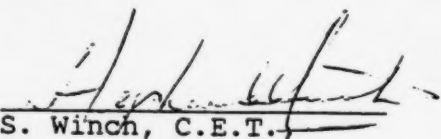
- a) There were no problems or difficulties encountered.
- b) Maintenance work was carried out at the Raquette St. outfall.
- c) No new outfalls were constructed.
- d) No improvements or modifications were made.

2. Proposed Plans for Future.

Funds for remedial work to the Olive St. outfall have been included in the 1986 Capital Estimates. As well funds for a study at the St. Charles St. outfall are available. Both these projects should be carried out in 1986.

3. Availability and Location of Proposed Borrow Pits

Borrow material is available from the District 2 Land-fill site and other City property and/or projects (excess material from excavations).


S. Winch, C.E.T.,
Technical Supervisor,
District #2 Operations.

SW/hs



THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

To: Mrs. B.M. Kuta,
Administrative Assistant.

From: Mr. M. Winkler, C.E.T.,
Technical Supervisor.

Re:

Date: 86/02/24.

Re: Dyking Commissioner's 1985 Annual Report

As requested in your memorandum of February 19, 1986 to District No. 3, below please find the subject information.

1. For the 1985 Calendar Year

a) Difficulties and problems encountered:

NIL

b) Maintenance repairs carried out:

Normal maintenance and repair works carried out on roadways on the surface of the dyke.

c) New Sewer Outfall Gate Structures constructed:

Fernbank Avenue at Red River

d) Improvements and modifications carried out:

NIL

2. With regard to apparent erosion and riverbank stability problems:

a) Evaluation of riverbank stability in critical areas:

Inspections of District #3 riverbank outfalls in February and March of 1984 revealed the following concerns:

Syndicate Street Outfall - Gully in front of most southerly outfall pipe - 42" diameter;
north pipe - okay

Burrows Avenue Outfall - Gully in front of outfall pipe.

Jefferson Avenue Outfall - Gully in front of outfall pipe -
Riprap commencing to fall apart.

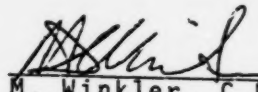
Armstrong Avenue Outfall - Gully in front of outfall pipe -
Riprap falling apart.

The District was unsuccessful in having a program of remedial works approved in the 1986 Capital Estimates; however the submission will be repeated for approval in the 1987 Capital Estimates and the District will reassess the condition of these critical areas in 1986.

- b) Monitoring of erosion of riverbanks in critical areas
 - no monitoring carried out in 1985
- c) Remedial works undertaken and completed in 1985
 - no remedial works undertaken or completed in 1985

3. Availability and Location of Proposed Borrow Pits

No change in availability and location of proposed borrow pits in 1985.



M. Winkler, C.E.T.,
Technical Supervisor.

MW/am

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

To: Mr. G. K. Stewart, P. Eng.
Director of Operations

From: Mr. S. Dolhun, P. Eng.
District Engineer
District No. 4 Operations

Re: File No. S-40-10-02

Date: 1986 03 12

RE: PRIMARY DYKING SYSTEM - DISTRICT NO. 4
1985 ANNUAL REPORT

1. For 1985 Calendar Year

- a) River bank erosion at #411 Desalaberry Avenue as identified in our 1984 Report has not been repaired to date. It is anticipated that the City will take remedial action this year.

Ice flows and riverbank erosion damaged the 2,500 mm c.m.p. outfall on the Munroe trunk sewer. Repairs will be undertaken in 1986.

- b) Normal maintenance and repairs were carried out.
- c) A new 3,700 mm land drainage outfall sewer was constructed to the Red River west of Watt Street, north of the Roland Street pumping station.

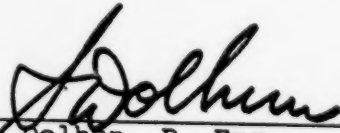
2. Proposed Plans for Future

The District's evaluation of sandbagging locations has not been completed to date.

- a) The District does not evaluate river bank stability. Any suspected problems are directed to the Streets and Transportation Department.
- b) Monitoring of erosion by the District is done primarily at outfalls as part of normal sewer maintenance inspections.
- c) No remedial works were undertaken in 1985.

3. Availability and Location of Proposed Borrow Pits

No change in 1985.


S. Dolhun, P. Eng.

BT/sm

FORM 8

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

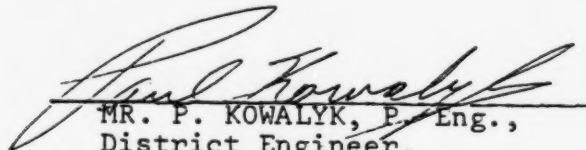
To: MRS. B. KUTA,
Administrative Assistant,
Operations Department.

From: MR. P. KOWALYK, P. Eng.,
District Engineer,
District #5.

Re: **Date:** 1986 03 14

RE: Questionnaire for the Annual Report on the
Primary Dyking System within the City of
Winnipeg - District #5.

As requested, we are submitting our annual
report on the primary dyking system within District #5.


MR. P. KOWALYK, P. Eng.,
District Engineer,
District #5.

PK/11

Encl.

PRIMARY DYKING SYSTEM QUESTIONNAIRE

I. FOR 1985 CALENDAR YEAR:

- Item (a): No difficulties were encountered.
- Item (b): i) All culverts were inspected within the dyking system. Maintenance of isolated portions were carried out on an as-required basis.
- ii) Major riverbank stabilization was carried out along the Red River at the Minnetonka Outfall.
- Item (c): i) No new outfalls were constructed in 1985.
- Item (d): No improvements or modifications were carried out which are not listed above.

II. PROPOSED PLANS FOR FUTURE:

- Item (a): Evaluation of riverbank stability in critical areas:
- i) Acquisition of property on Evans Street at the Seine River is planned. (No approval for 1986).
- Item (b): Monitoring of erosion of riverbanks in critical areas:
- No monitoring was carried out by District forces in 1985.
- Item (c): Remedial works undertaken or completed in 1985:
- No remedial works were undertaken in 1985.

III. AVAILABILITY AND LOCATION OF PROPOSED BORROW PITS:

Proposed borrow pits are the same locations as identified in previous years:

- Whittier Park
- Area North of C.N.R. Highline
- Provencher East Area/nominal
- River Road

FORM 2

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

To: Mrs. B.M. Kuta
Administrative Assistant
Operations Department

From: J. Friesen, P. Eng.
Asst. District Engineer
District 6

Re: **Date:** 1986.03.12

RE: PRIMARY DYKING SYSTEM WITHIN THE CITY OF WINNIPEG
- DYKING COMMISSIONER'S 1985 ANNUAL REPORT

As requested in your memorandum of February 19, 1986, we submit our annual report on the primary dyking system within District 6.

I. FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1985:

- a) No problems or difficulties were encountered.
- b) Normal maintenance and repairs were carried out.
- c) No new sewer outfalls or gate structures were constructed by the District.
- d) Only routine maintenance was performed, and no improvements and/or modifications to the existing system were undertaken.

II. PROPOSED PLANS FOR THE FUTURE:

- a) No new outfalls or gate structures or modifications to existing structures are planned for 1986. No major work is planned on the primary dyke. Routine maintenance will be carried out.
- b) No evaluation studies in connection with the "Primary Dyking System" are contemplated for the near future by this District.
- c) No evaluations of riverbank stability in critical areas are planned by the District. Evaluation may, however, be undertaken by private interest groups in connection with proposed development.
- d) No remedial works on river banks were undertaken by the District in 1985. The District is not carrying out any program of monitoring erosion along the river banks, but will advise the Waterworks, Waste and Disposal Department if an erosion problem is discovered.

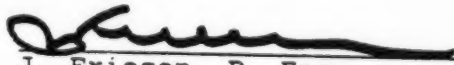
Mrs. B.M. Kuta
Page 2
1986 03 12

III. AVAILABILITY AND LOCATION OF PROPOSED BORROW PITS:

Following is a list of borrow pit areas which, with the exception of the area described in (1), lie inside the primary dyking system and should be accessible at river levels reached in 1950. Actual quantities of borrow pits are not known; however, sites are sufficiently large that adequate material should be available:

- 1) North-east corner of Oakenwald Avenue and North Drive;
- 2) Park area adjacent to South Drive between Kebir Place and Holly Avenue;
- 3) Oakenwald School Grounds - westerly extremity of Manchester Boulevard North and South;
- 4) River Lots 17 and 18 east of Waverley Street and north of Lot 16 Drain;
- 5) Waverley Street from De Vos Road to Bison Drive -- large open tracts of land on either side of Waverley Street.

HH/mes


J. Friesen, P. Eng.

THE CITY OF WINNIPEG
INTER-OFFICE MEMORANDUM

FILE: SG-11 *PL*

To: Mr. P. Lagasse, P. Eng.
Waterworks, Waste & Disposal Dept.

RECEIVED
WATERWORKS
MAR 25 10 20 AM 1986
From: E. W. J. Clarke, P. Eng.
Director of Streets and
Transportation Dept.

Re:

Date: 1986 03 20

RE: DYKING COMMISSIONER'S 1985 ANNUAL REPORT

The Streets and Transportation Department undertook no remedial river-bank erosion or stability works in 1985.

Visual monitoring of erosion is being undertaken at the following locations:

1. Alfred Avenue street end at Red River
2. Pembina Highway just north of Grandmont Blvd. (Red River)
3. Kildonan Park riverbank along Red River
4. Pembina Highway at Turnbull Drive (La Salle River)
5. Empress Street along Omand's Creek
6. Carriere Avenue street end at Red River

An engineering consultant has been retained by the Department to prepare a geotechnical report for the City in regards to a complaint received on the condition of a retaining wall located at the Dominion Street end at the Assiniboine River.

GAK/ms





THE UNIVERSITY OF MANITOBA

OFFICE OF THE PRESIDENT

Winnipeg, Manitoba
Canada R3T 2N2

March 13, 1986

Mr. F. Penner
Dyking Commissioner
Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

Dear Mr. Penner:

Re: Dyking Commissioner's 1985 Annual Report

I am pleased to submit the information that you have requested on the dyking system and pumping system under the University's jurisdiction for inclusion in your 1985 annual report.

1. 1985 Calendar Year

- a) Difficulties and problems encountered: None
- b) Maintenance and repairs carried out: Routine only
- c) New sewer outfall gate structures constructed: None
- d) Improvements and modifications carried out: None, other than backfilling work around the newly completed Geological Sciences Building.

2. Proposed Plans for Future

A two foot high earth dyke will be constructed around the east, south and west side of the old Water Works Building to contain a possible oil spill. The dyke will be constructed as per specifications provided by Environment Canada.

The location of the containment dyke will be on the south side of the Campus, south of Freedman Crescent.

Bank stability - The most critical areas of the bank are located on the south side of the campus adjacent to McLean Crescent and on the north side at the site of the Geological Sciences Building. Bank slippage in the southerly area is reviewed annually and normal lateral movement of an estimated 5 to 10 centimeters or less per year is observed. The bank adjacent to

Page 2

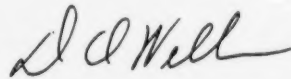
the Geological Sciences Building construction site was monitored as outlined in the Underwood, McLellan letter of January 27, 1984. Monitoring at the Geological Sciences Building site will be continued, by the Engineering Faculty of this University for many years.

No remedial work other than backfilling around the new Geological Sciences Building has taken place during 1985.

3. Availability and Location of Proposed Borrow Pits

No changes are suggested in the availability or location of proposed borrow pits in 1986.

Sincerely yours,



D. O. Wells
Vice-President (Administration)

DOW:j1
Att.

c.c. R. McDowall
W. R. Wall

Underwood McLellan Ltd.

1479 Buffalo Place
Winnipeg, Manitoba R3T 1L7
Telephone (204) 284-0580

File: 4184-001-03-05

January 27, 1984

Spantec Ltd.
1479 Buffalo Place
Winnipeg, Manitoba
R3T 1L7

Attention: Mr. Gerry Phillips

Dear Sir:

Re: Earth Sciences Building
University of Manitoba

To assist the University in replying to the Provincial Dyking Commission, I had a brief telephone conversation with Mr. Frank Penner (tel. 944-7404) of the Water Resources Division of the Province of Manitoba. Accordingly I believe the following would be sufficient to meet the Commission's requirements to be brought up to date with any changes to the primary and secondary dyking systems.

The new Earth Sciences Building for the University of Manitoba is under construction on the north side of the campus adjacent to the Red River at the intersection of Dysart and Sifton Roads. Dysart and Sifton are relocated slightly to the south (see attached plan) with the basic roadway grades remaining unchanged.

The Earth Sciences Building is being constructed on a driven pile foundation and located between the relocated roadways and the riverbank. A riverbank stabilization program involving construction of a toe berm at and below river level has been completed. Monitoring of the slope using pneumatic piezometers and slope indicators is underway and will continue. (See attached drawings).

The Building involves 3 above grade storeys for classrooms, laboratories and workshops. The main floor elevation is El. 233.46 m (geodetic). An unfinished basement (floor El. 229.62) is incorporated into the substructure for equipment storage and storage of geological diamond drill core. (See attached drawing). (Note to GP: I believe a building cross-section showing the 3 floors, basement and outside grades would be useful here).

.../2

.../2

Mr. Gerry Philipps
Spantec Ltd.
January 27, 1984

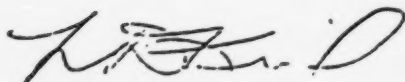
The basement layout (see attached drawing) has been developed to prevent flooding by locating three (3) sump pits. One (1) each at the east and west end and one (1) pit centrally between grid lines 14 and 15. The perimeter weeping tile is designed to flow into the east and west sump pits and the underslab weeping tile is designed to flow into the central sump pit. Each sump pit is discharged into the existing storm sewers. Check valves ensure that no backup occurs into these pits from the storm sewer. Each pit is to be complete with pumps of sufficient capacity to keep the basement dry. Waterproofing of the chiller pit has been accomplished by the use of a bituthane 3000 sealed on the floor slab and the surrounding walls of the pit. The elevator pits have been supplied with floor drains to each of the east and west sump pits. Check valves to these floor drains; prevent flooding backup from the sump pits. Further, the exterior foundation wall, under grade beams and under slabs, have a 4 mil. reinforced polyethelene damproofing vapour barrier application over and under all these surfaces which will be sealed at all joints. Should it be necessary to close off the check values to the three (3) main sump pits, then temporary lines may be run from the sump pumps to the river.

Should high water levels occur on the Red River, such that dyking is necessary, not only for this building but for the entire Campus, the building can be dyked along the north face between the building and the top of the riverbank to ensure the integrity of the temporary dyking system for the Campus.

Should the University or the Dyking Commission require any further details or explanations please don't hesitate to have them contact you.

Yours truly,

UNDERWOOD MCLELLAN LTD.



L. D. Keil, P. Eng.
Director
Earth Sciences Building

LDK/pmb
Encl.

cc: T. Stratton (IKOY)